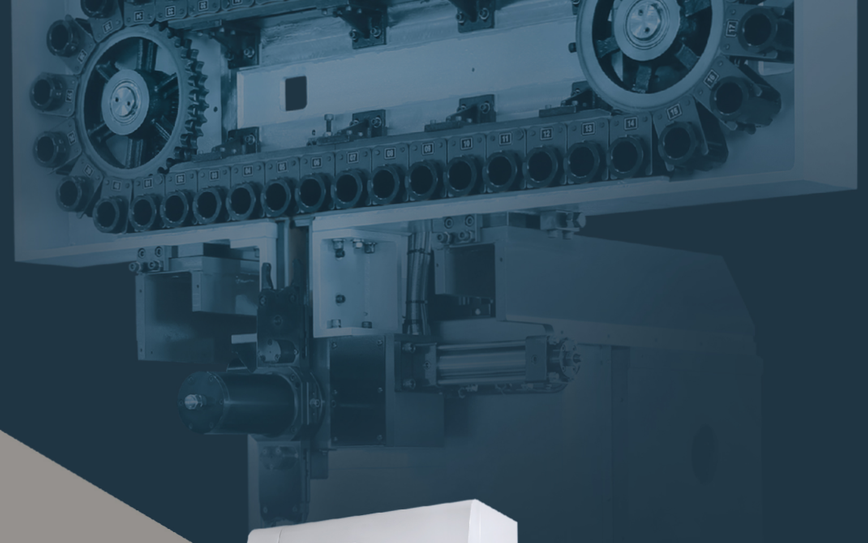




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HE-400

High Speed Horizontal Machining Center with 2APC

Twinhorn

CHI-FA MACHINERY MANUFACTURER CO., LTD.

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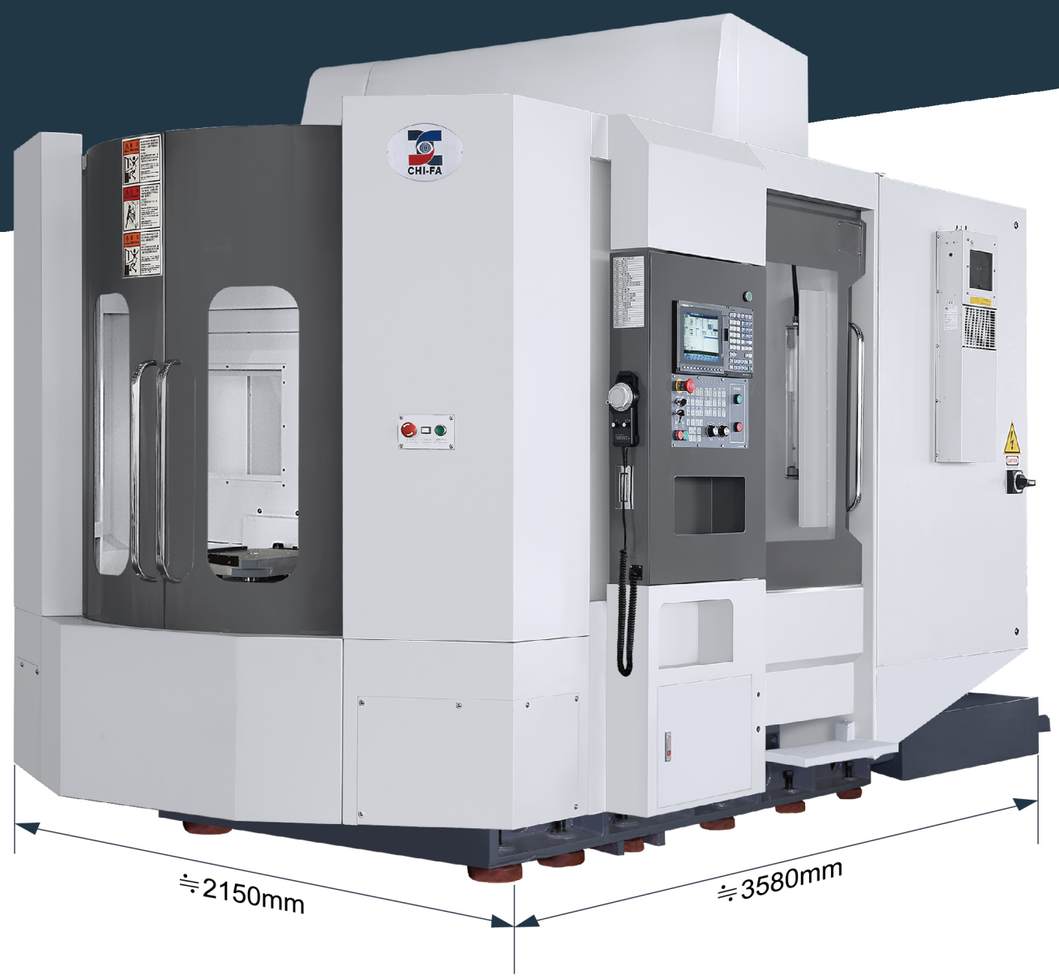
www.sogitechsrl.com

Design 201811.HE Series(E2)1000P

HE-400 High Speed Horizontal Machining Center with 2APC

Machine Specifications with Twin Pallet Change

Spindle speed	8000 rpm (Option:12000/15000 rpm)
Tool capacity	32 (Option:40/60)
Axis travel(X/Y/Z)	600x500x500 mm
Axis rapid feed(X/Y/Z)	36x36x36 m/min (Option:60x60x60)
Tool change time	T-T 2.5 sec ; C-C 3.5 sec

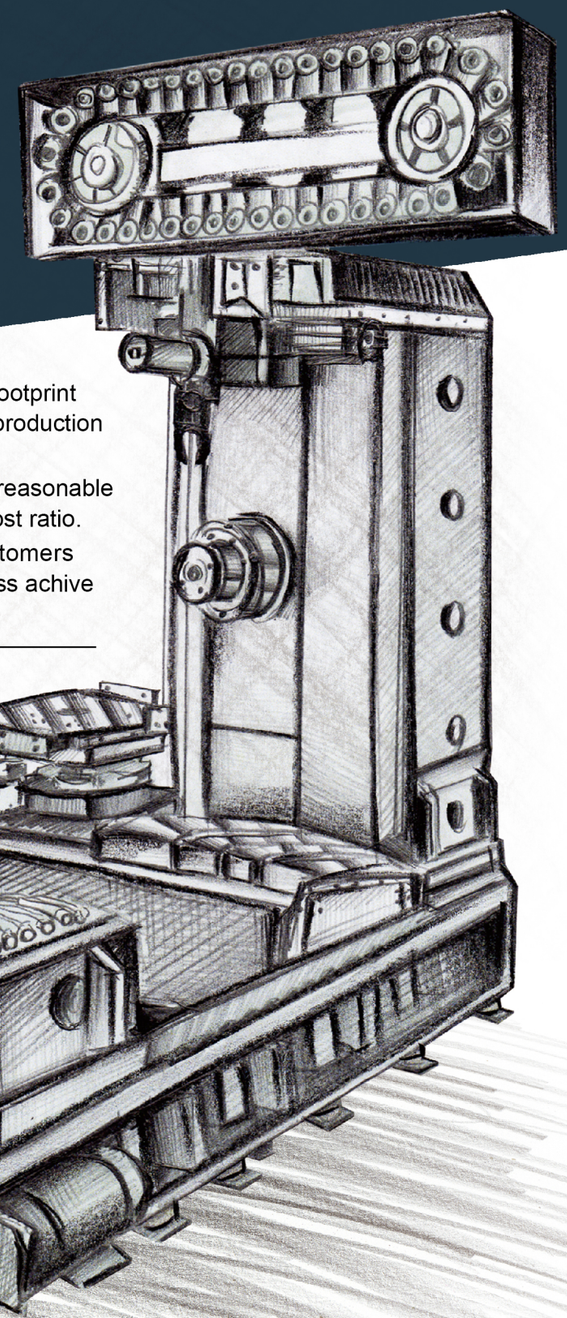


HIGH SPEED

The tool magazine is driven by a servo motor providing fast tool pot positioning without error. Three axes ball screws are directly driven by servo motors allowing rapid feed rate up to 60 m/min.

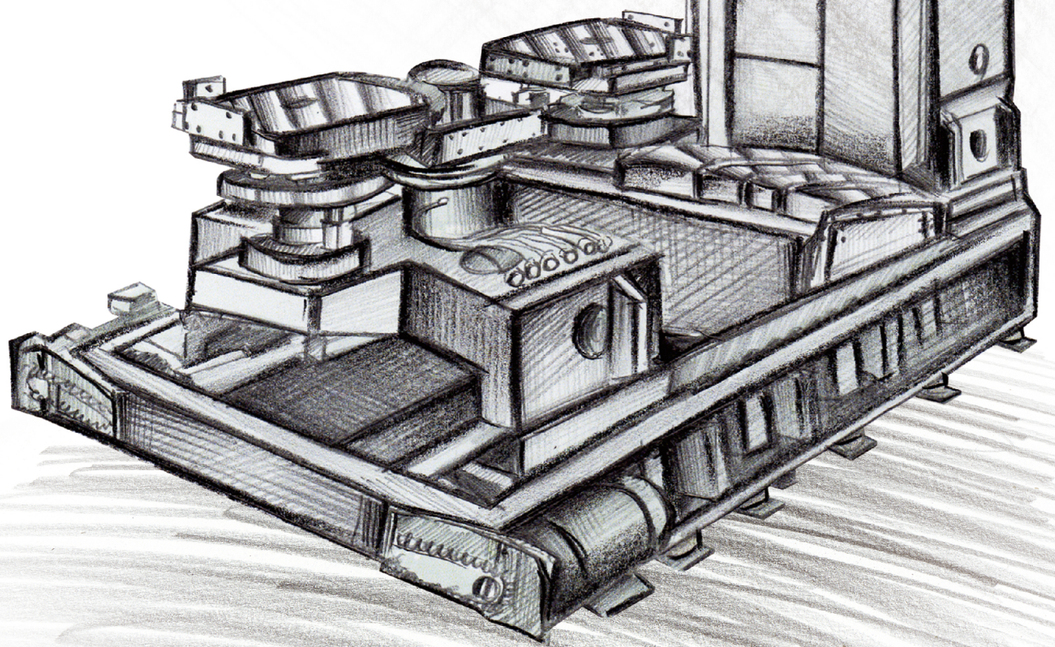
AUTO-MATION

Automatic pallet changer dramatically shortens workpiece loading/unloading time enhance through put.



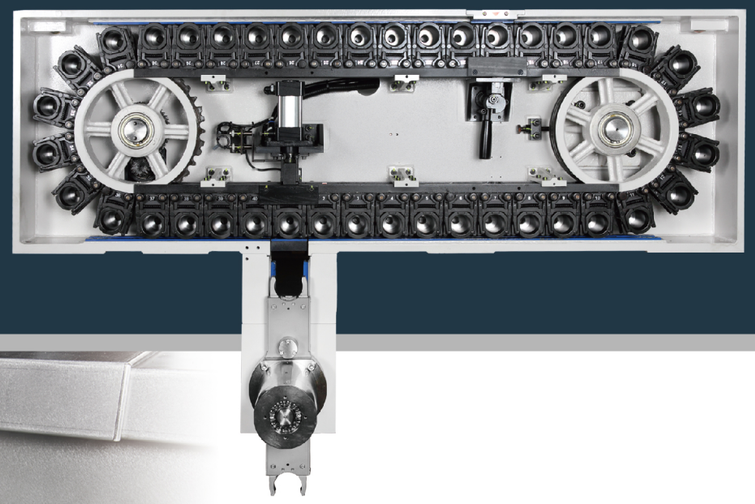
ECONOMI-ZATION

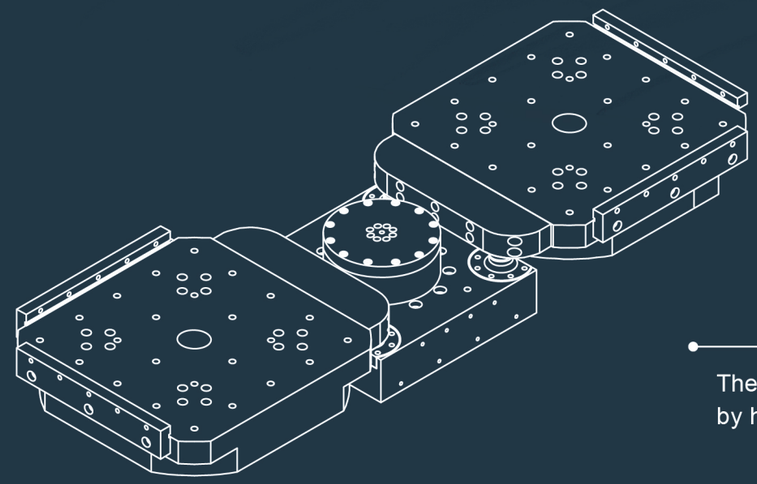
1. Clean structure design with small footprint makes the machine ideal for mass production line.
2. Accurate cost control together with reasonable price lead to high performance to cost ratio.
3. High productivity feature allows customers to obtain desired throughput with less achive machines.



TOP MOUNTED ATC SYSTEM

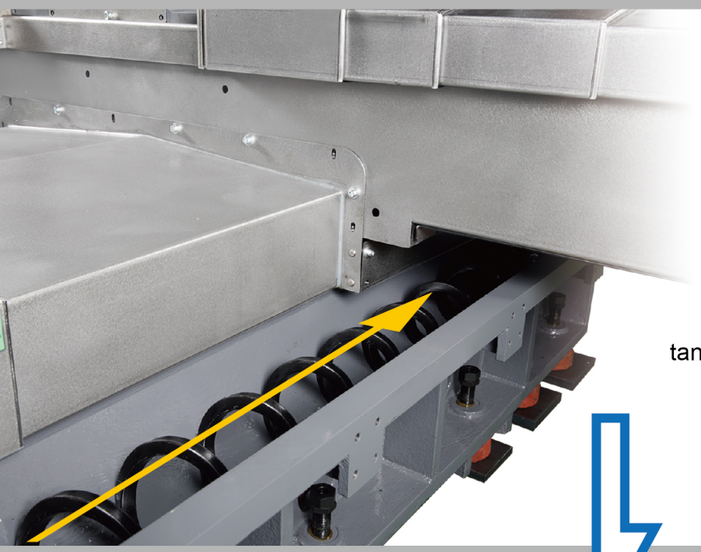
1. The top-mount magazine requires less floor space.
2. The magazine is driven by a servo motor for fast tool positioning without error.
3. The magazine door and tool change arm operate simultaneously, and hence tool change speed is not affected by door open / close.





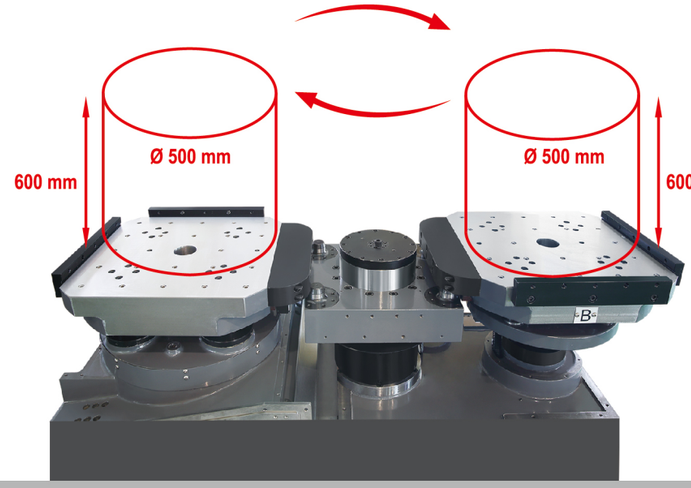
AUTOMATIC PALLET CHANGER

The automatic pallet changeris driven by hydraulic power!



CHIP REMOVAL SYSTEM

The machine interior is equipped with two chip augers. During machining, chips are easily evacuted through the chip augers to the coolant tank. This eliminates machine down time for removing chips while increasing production efficiency.

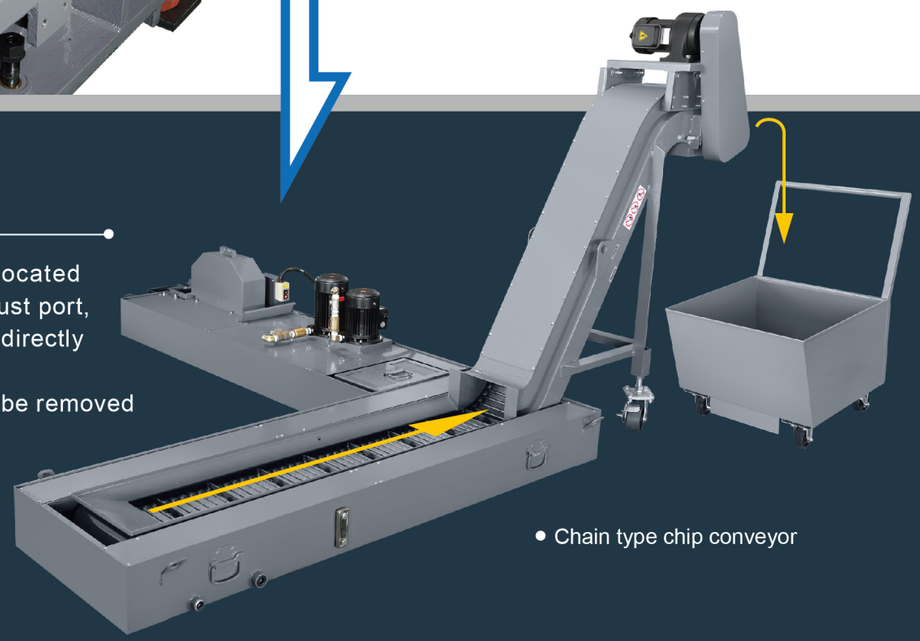


INTERFERENCE-FREE MACHINING ROOM

The rotary table sizes are 400x400mm that permits maximum machining range up to 500mm diameter by 600mm height. The tables not only serve large workpiece, but also can be loaded with multiple small parts for machining with single set-up.

COOLANT TANK

The coolant tank is located under the chips exhaust port, so that chips can fall directly into the conveyor.
This enables chips to be removed efficiently.



• Chain type chip conveyor

Taper engagement surfaces to creates force multiplying effect.

Force only passes through three parts, the as steel ball, external and internal conical rings.

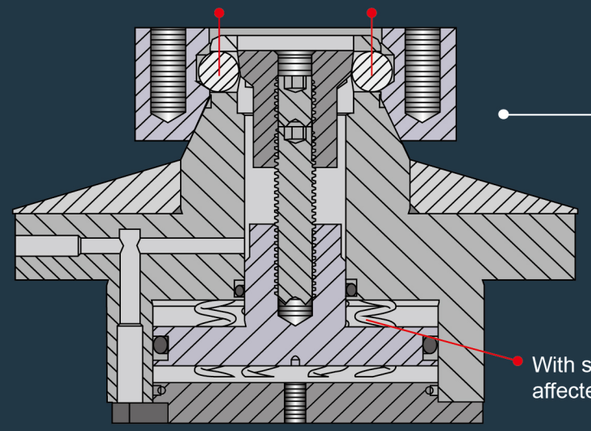
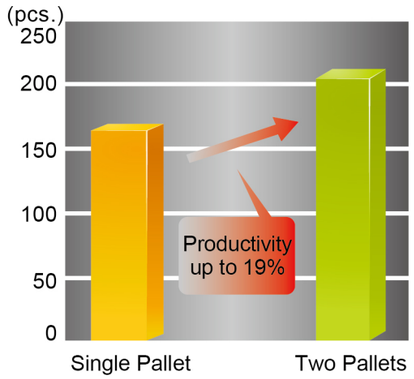


TABLE SPRING LOCKING

Table clamping force comes from spring. The spring provides constant force output to ensure the highest clamping accuracy. Table accuracy is not affected by pressure variation of supply system.

With spring clamping force, accuracy is not affected by external pressure variation.

EFFICIENCY COMPARISON TABLE



Benefits of Twin Pallet :

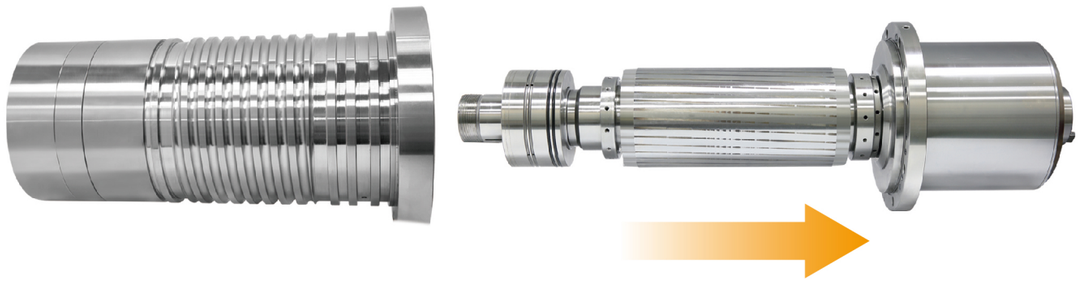
- During machining, operator can change workpiece on the ready pallet or remove chips without interruption during production process.
- High production efficiency and reliable productivity.
- A new workpiece can be changed at the ready area during machining which allows operator to cover many machines at same time easily.

Example of High Production Capacity :

- No matter what in one time machining for multiple parts or multiple surfaces machining on a single part by using jigs, both parts fastening time and jig cleaning time can be reduced but productivity is increased by 19%.

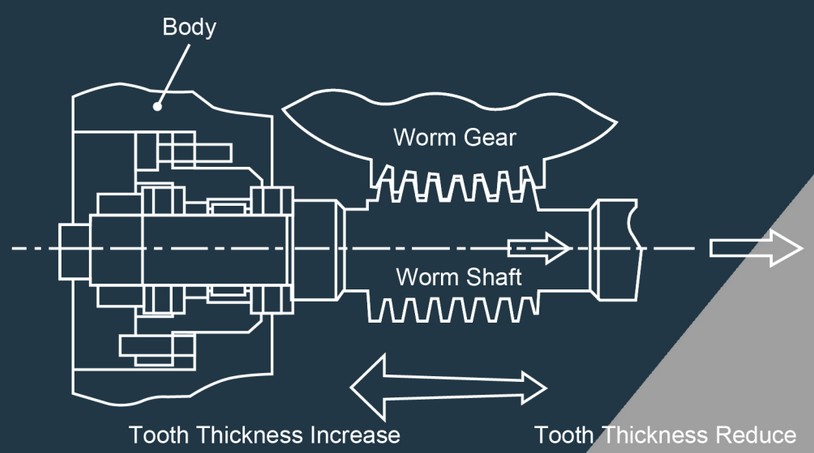
Machining time:150 sec/piece
Change time:35 sec/piece (10 hours x 85% of utilization)

QUICK MAINTENANCE SYSTEM



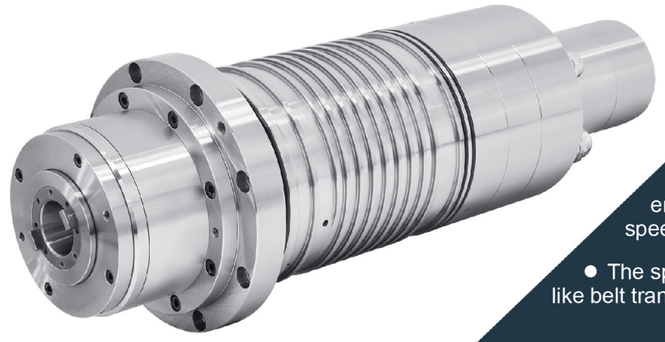
The front end of spindle can be removed quickly allowing maintenance to be accomplished in one hour. This reduces the loss of machine down times.

HIGH PRECISION B-AXIS



B-axis worm shaft and worm gear are pre-load designed with variable tooth thickness to maintain even wearing for a long time ,and also ensure high accuracy aswell as long service life.

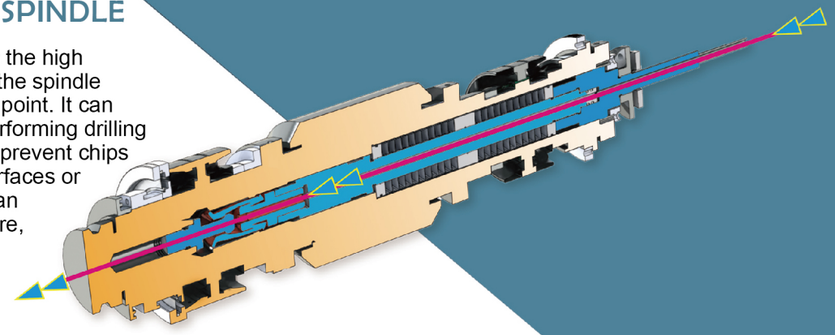
BUILT-IN TYPE SPINDLE



- This type of spindle features high rigidity at low running speed, and it can suppress vibration at high running speed. High machining accuracy is ensured at various running speeds.
- High acceleration / deceleration capabilities enable the spindle to reach a desired working speed in the shortest time, that reduces waiting time.
- The spindle features include high sensitivity, no noise like belt transmission, minimum vibration and no backlash.

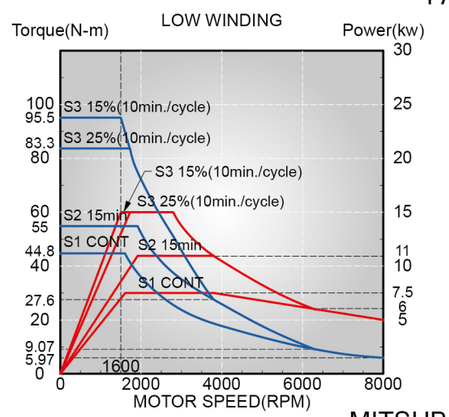
COOLANT THROUGH SPINDLE

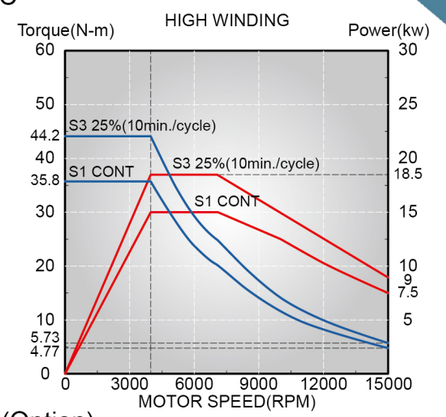
The cutting fluid discharged from the high pressure pump will flow through the spindle center and the tool to the cutting point. It can efficiently remove chips when performing drilling and tapping operations, so as to prevent chips from scratching on workpiece surfaces or damage to the tool. Besides, it can effectively reduce tool temperature, extend tool life and dramatically enhance working efficiency.



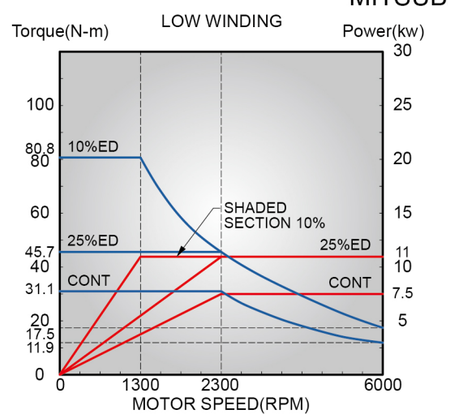
SPINDLE MOTOR POWER/TORQUE CHART

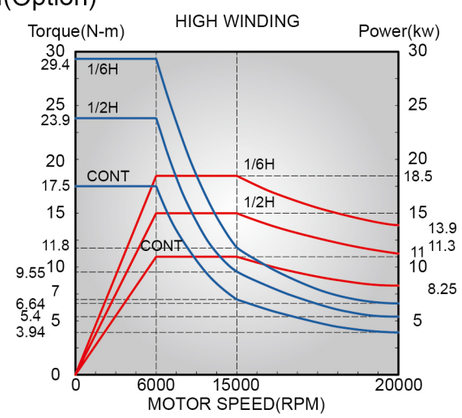
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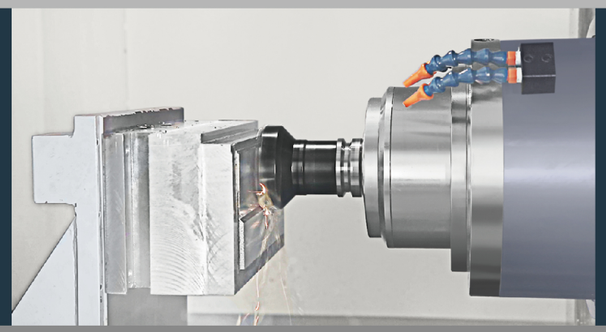
MITSUBISHI(Option)





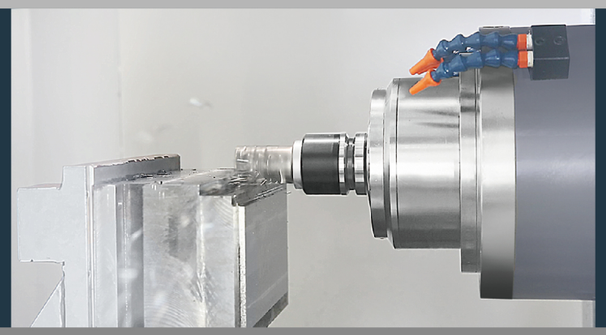
CUTTING ABILITY

Spindle Motor Model : Mitsubishi



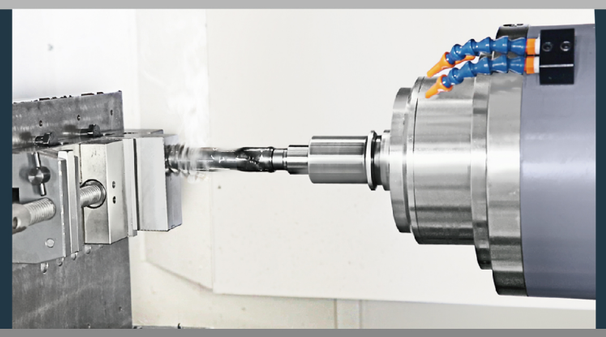
Face Milling

Tool size : 80mm diameter
Spindle speed : 1300 rpm
Feed rate : 1250 mm/min
Cutting width : 65 mm
Cutting depth : 4 mm
Spindle load ratio : 120%
Material removal rate : 325 cc/min



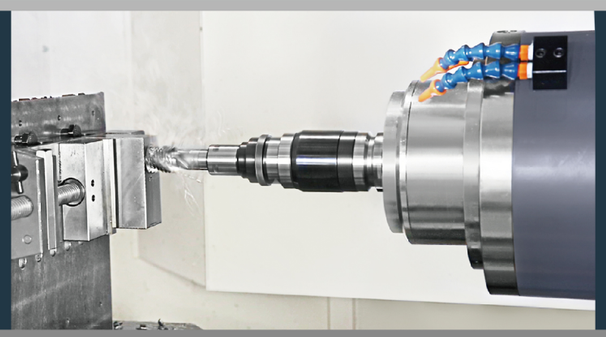
End Milling

Tool size : 40mm diameter
Spindle speed : 1300 rpm
Feed rate : 2080 mm/min
Cutting width : 5 mm
Cutting depth : 30 mm
Spindle load ratio : 121%
Material removal rate : 304 cc/min



Drilling

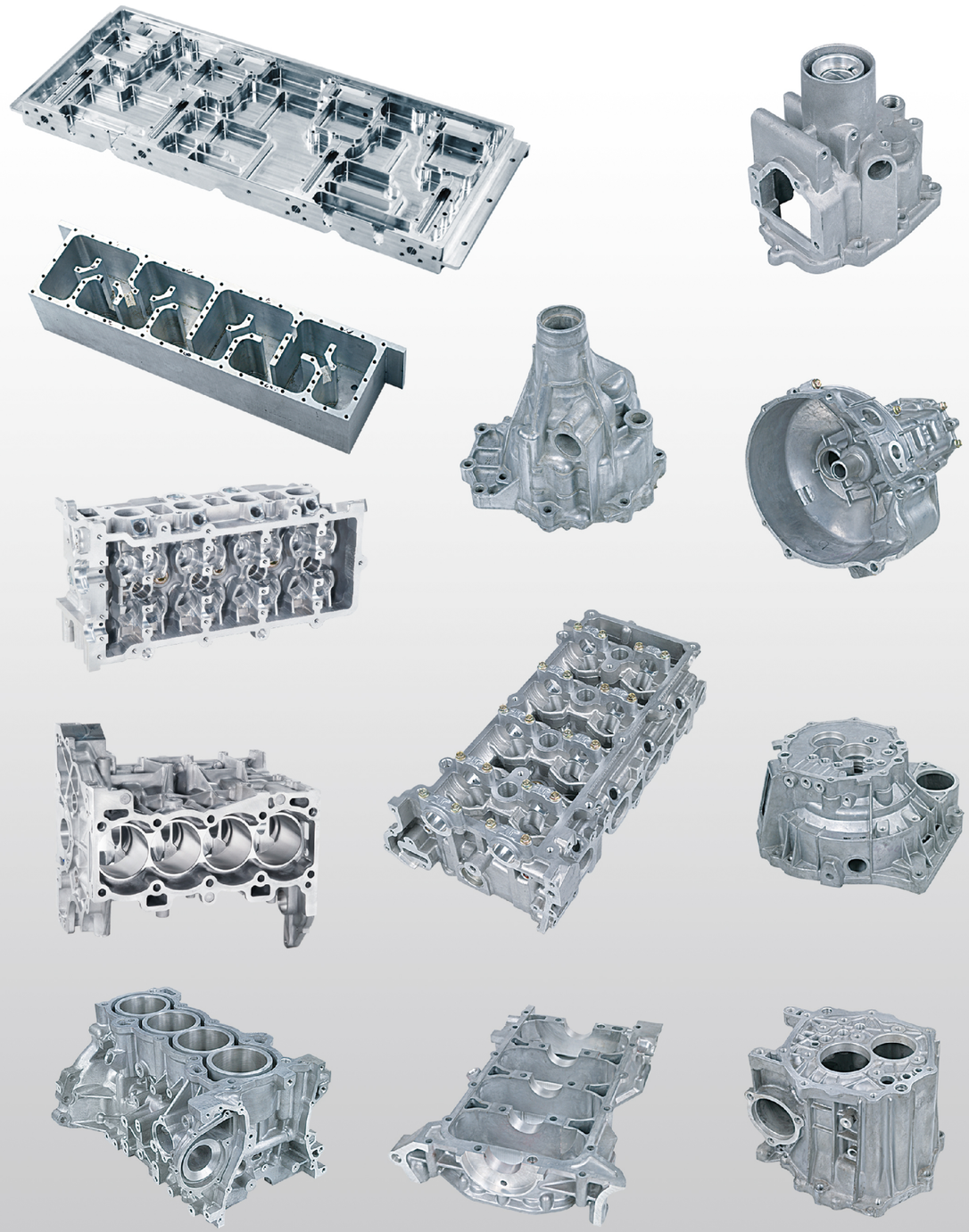
Tool size : 30mm diameter
Spindle speed : 265 rpm
Feed rate : 106 mm/min
Spindle load ratio : 127%
Material removal rate : 75 cc/min



Tapping

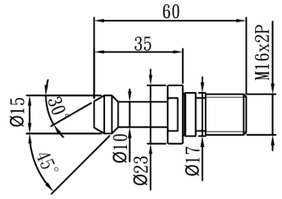
Tool size : 30mm diameter
Spindle speed : 160 rpm
Feed rate : 560 mm/min
Spindle load ratio : 96%

APPLICATION SAMPLE PARTS



DIMENSIONAL DRAWINGS

PULL STUD AND TOOL SHANK



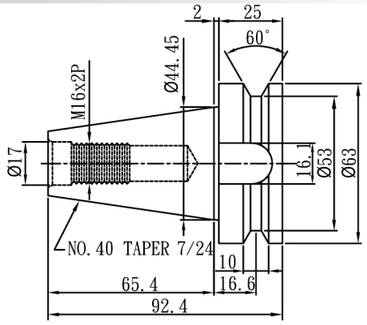
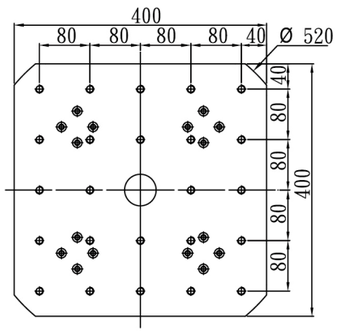
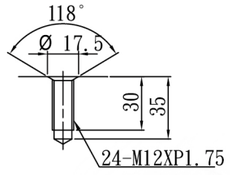
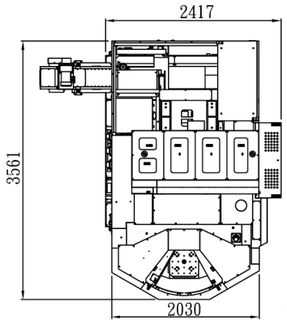


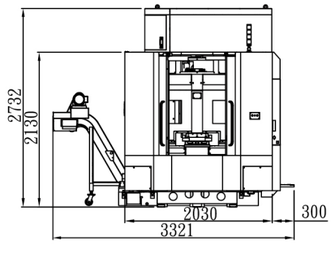
TABLE SIZES

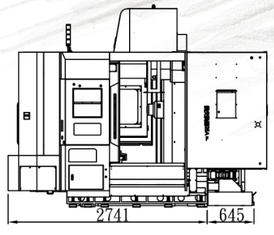


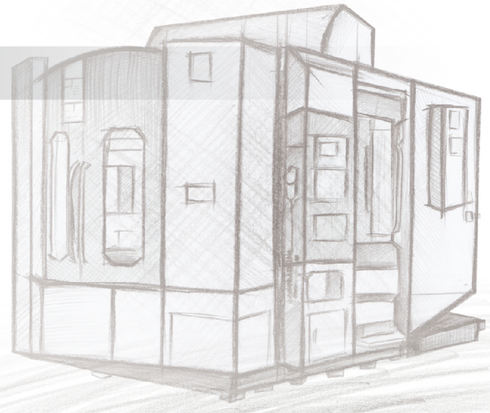


MACHINE DIMENSIONS









HE-400 MACHINE SPECIFICATIONS

TRAVEL	
X axis	600 mm
Y axis	500 mm
Z axis	500 mm
Min. distance from spindle nose to table center	100 mm
Min. distance from spindle center to table surface	100 mm
TABLE	
Table dimension	400 × 400 mm
Max. sizes of workpiece	Ø 500 × 600 mm
Max. swing diameter in working space	Ø 700 mm
Max. table load	400 kg
APC	
Pallet change type	Rotary type
Number of pallets	2
Distance from table to floor	987 mm
Pallet change time	12 sec
SPINDLE	
Spindle type	Built-in type BT-40(Option: HSK-A63)
Spindle speed	8000 rpm(Option:12000/15000rpm)
Inside diameter of bearing	70
Spindle motor	11 / 18.5 kW
FEED	
Rapid feed rates (X/Y/Z)	36/36/36 m/min (Option: 60/60/60 m/min)
Cutting feed rates (X/Y/Z)	20 / 20 / 20 mm
X/Y/Z axis ball screws(dia.)	32×32×40 mm
ATC	
Tool capacity	32 (Option: 40/60)
Tool change type	Arm type
Tool shank	BT-40 (Option: HSK-A63)
Tool change time	T-T 2.5 sec ; C-C 3.5 sec
Max. tool weight	7 kg
Max. tool diameter (with/without adjacent tool)	Ø 75 / Ø 125
Max. tool length	300 mm
Tool selection method	Fixed type
Magazine drive	Servo motor
OTHER	
Machine width	2417 mm
Machine length (incl. coolant tank)	3561 mm
Machine height	2732 mm
Machine weight	6500 mm

STANDARD Accessories

- Spindle oil cooler
- Coolant tank
- Fully enclosed splash guard
- Working lamp
- Automatic lubrication system
- Operation indication lamp
- Spindle air blast device
- Twin chip augers on base
- Automatic side flushing device
- Spindle air curtain
- Working air blast
- Cutting fluid supply device
- Rigid tapping
- Heat exchanger for electrical cabinet
- Tool box with adjustment tools
- Leveling bolts and pads
- Air gun
- Coolant gun
- Remote MPG
- Operation manual
- Safety switch
- Chain type chip conveyor

OPTIONAL Accessories

- Automatic tool length measurement device
- Coolant through spindle device
- Oil skimmer
- Transformer
- Voltage stabilizer
- Linear scale
- Coolant level switch
- Automatic workpiece clamping on table (Hydraulic circuit)